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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/643,355 | 08/19/2003 | John G. Wasserbauer | JW-1002 | 3842 |
| 36601 | 7590 | 02/28/2006 | EXAMINER | |
| INTELLECTUAL PROPERTY ADVISORS LLC | | | VAN ROY, TOD THOMAS | |
| PO BOX 156 | | | ART UNIT | PAPER NUMBER |
| CANTON, CT 06019 | | | 2828 | |

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/643,355

Applicant(s)

WASSERBAUER, JOHN G.

Examiner

Tod T. Van Roy

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11 and 13-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11 and 13-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The examiner acknowledges the amending of claims 1-9, 11, and 13-15, cancellation of claims 10 and 12, and addition of claims 16-17.

Response to Arguments

Applicant's arguments with respect to claims 1-9, 11, and 13-17 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7, 9, 11, and 13-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Kinoshita (US 6330265).

With respect to claim 1, Kinoshita discloses a discrete standing wave photonic device (fig.2, standing waves in vertical (y) direction except near #30, and in longitudinal direction) comprising: a pair of distributed Bragg reflector mirrors (fig.2 #21 and #20) surrounding a cavity in a vertical (y) direction, whereby said cavity forms a vertical waveguide (Bragg mirrors form confining waveguide in (y) direction); a waveguide in a lateral (x) direction (fig.2 #4); and a distributed feedback (DFB) grating in a longitudinal

(z) direction (fig.2 #10, col.6 lines 62-63) integral to said cavity in said vertical (y) direction.

With respect to claim 2, Kinoshita discloses useful light is extracted by an optical tap (fig.2 #30, col.9 lines 40-42).

With respect to claim 3, Kinoshita discloses said lateral (x) direction optical confinement is achieved by means for index modulation (as the layer #4 is taught to be a waveguide, and is not taught to use gain/loss modulation or resonant waveguide modulation, it must inherently use index modulation in order to function as described).

Claims 4-6 are rejected for the same reasons given in the rejections to claim 1-3. Claim 4 states the DFB grating is in a radial (r) direction, while the applicant's remarks, see Remarks filed 11/10/2005, refer to the radial direction as being the same as the longitudinal (z) direction (pg.15, and referenced as well to the specification figs.13-14). Since the radial (r) direction and longitudinal (z) direction are equivalent it is believed that the limitations of claim 4 are met by the teachings of Kinoshita found in the rejection to claims 1-3.

With respect to claim 7, Kinoshita discloses a discrete traveling wave photonic device (fig.1, facets have low reflectivity allowing for traveling wave exit) comprising: a pair of Bragg reflector mirrors (fig.1 #20 and #21) surrounding a cavity in the vertical (y) direction, whereby said cavity forms a vertical waveguide (Bragg mirrors form confining waveguide in (y) direction); a waveguide in the lateral (x) direction (fig.1 #4); and no optical confinement in the longitudinal (z) direction (cols.8-9 lines 67-2, facets taught to have low reflectivity, leading to no optical confinement in the (z) direction).

With respect to claim 9, Kinoshita discloses such devices to be used as optical amplifiers (col.1 lines 26-27), and also could be considered an active waveguide with gain coming from quantum well (fig.1 #3).

With respect to claim 11, Kinoshita discloses said lateral (x) direction optical confinement is achieved by means for index modulation (as the layer #4 is taught to be a waveguide, and is not taught to use gain/loss modulation or resonant waveguide modulation, it must inherently use index modulation in order to function as described).

With respect to claim 13, Kinoshita discloses a photonic integrated circuit comprising: a pair of distributed Bragg mirrors (fig.2 #20 and #21) surrounding a cavity in a vertical (y) direction, whereby said cavity forms a vertical waveguide (Bragg mirrors form confining waveguide in (y) direction) common to component devices in the photonic integrated circuit; a waveguide in a lateral (x) direction (fig.2 #4); and optical tap means for extracting light from the waveguide (fig.2 #30) integral to said pair of distributed Bragg reflector mirrors.

With respect to claim 14, Kinoshita discloses component devices consist of a laser (abs.).

With respect to claim 15, Kinoshita discloses integration of component devices is provided by means outside of the plane of an active waveguide layer utilizing reflective elements (active layer #3, reflection via Bragg mirrors out of plane of active region integrates the components).

With respect to claim 16, Kinoshita discloses an active waveguide layer to be optically pumped (col.20 lines 15-16).

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With respect to claim 17, Kinoshita discloses the component device to include a discrete standing wave component device (fig.2, standing waves in vertical (y) direction except near #30, and in longitudinal direction).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinoshita.

With respect to claim 8, Kinoshita teaches the optical device outlined in the rejection to claim 7, including the facets to have reduced reflectivity, but does not teach the use of an optical tap or a cleaved facet. It would have been obvious to one of ordinary skill in the art at the time of the invention to place an anti-reflection coating on the facet to reduce the reflectivity as is widely known and used in the art, or to create the facet via cleavage, a common fabrication practice.

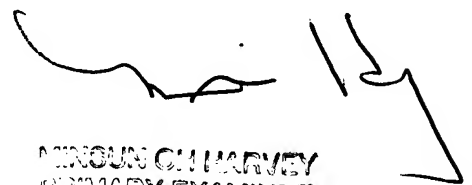
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TVR



MIN SUN CH. HARVEY
PRIMARY EXAMINER